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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,604	03/08/2004	Richard S. Bein	355492-2971	1765

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EXAMINER	
SAMALA, JAGADISHWAR RAO	
ART UNIT	PAPER NUMBER
1618	
MAIL DATE	DELIVERY MODE
04/09/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/796,604	BEIN ET AL.	
	Examiner	Art Unit	
	JAGADISHWAR R. SAMALA	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of Applicant's Remarks and Request for Continued Examination filed on 03/22/2010.

- Claims 25-30 have been amended.
- Claims 1-24 and 30 have been cancelled.
- Claims 25-29 are pending in the instant application.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/22/2010 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 25-30 are vague and indefinite because it is unclear how the ratio of biocompatible polymer to the water-insoluble biocompatible contrast agent 0.995 can arrive. With biocompatible polymer having lower limit from zero or one to 40 percent, it is impossible to arrive the recited ratio of 0.995. Please clarify in order that one may readily ascertain what is being claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 25-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Whalen et al (US 2002/0090339) in view of Paterson et al (US 2004/0224864) or Porter

et al (US 2004/0197302) **are maintained** for reasons of record in the previous office action filed on 07/20/2009 and 12/24/2009.

Applicant argues that Whalen et al fails to disclose the use of contrast agent in the amounts recited herein coupled with the ration of polymer to contrast agent as now required in the claimed invention. Nor does Whalen suggest any benefit that could be achieved by such a combination of contrast agent and polymer.

This argument is not persuasive since Whalen patent teaches embolic composition comprising: a biocompatible polymer such as ethylene vinyl alcohol copolymer at a concentration of from about 2 to about 50 weight percent; and a biocompatible contrast agent (tantalum) at a concentration of from about 10 to about 40 weight percent; and a biocompatible solvent (dimethylsulfoxide) from about 10 to about 88 weight percent wherein the weight percent of the biocompatible polymer, contrast agent and biocompatible solvent is based on the total weight of the complete composition (abstract and 0032-0035).

An improvement in the art would have been obvious if "it is likely the product not of innovation but of ordinary skill and common sense." *KSR Int'l Co. v. Teleflex Inc.,* 550 U.S. 398, 421 (2007). Finding workable or optimal ranges in generally understood as within the capabilities of the ordinary artisan. See *Pfizer Inc. v. Apotex Inc.,* 82 USPQ2d 1321 (Fed. Cir. 2007). Likewise, optimization of a range or other variable within the claims flows from the “normal desire of scientists or artisans to improve upon what is already generally known.” *In re Peterson*, 65 USPQ2d 1379, 1982. Similarly, a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not

overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USP773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium). Further, embolic composition comprising from about 2 to about 50 weight percent; and a biocompatible contrast agent (tantalum) at a concentration of from about 10 to about 40 weight percent; and a biocompatible solvent (dimethylsulfoxide), having a viscosity of at least about 150 cSt at 400C permit more rapid and consistent solidification in vivo thereby rendering the solid mass formed non-migratory and substantially contiguous in shape. It further believed that the raped and consistent solidification in vivo arises at least in part from the high viscosity of these compositions which renders migration from the ejection port of the catheter at the vascular site more difficult.

Applicant argues that Whalen recites that the composition is preferably heated to facilitate formation of a uniform suspension.

This argument is not persuasive since Whalen recites that composition can be prepared by adding sufficient amounts of the biocompatible polymer to the biocompatible solvent to achieve the effective concentration of the polymer composition. If necessary, gently heating and stirring can be used to effect dissolution of the biocompatible polymer into the biocompatible solvent. Further, composition does not exclude heating and/or stirring, to achieve effective homogeneity of the suspension

employing such contrast agent during the process of preparation of a composition. The composition can be either in suspension form or uniform solution or substantially homogenous.

Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whalen et al (US 2002/0090339) in evidence of Dure-Smith et al (3,937,800).

Applicant claims are drawn to a composition consisting essentially of up to 40%of ethylene vinyl alcohol copolymer; dimethylsulfoxide; and from 40.2 50 53.4 weight percent of tantalum contrast agent having an average particle size of about 5 microns or less; wherein the ratio of ethylene vinyl alcohol copolymer to the tatalum contrast agent is from 0.077 to 0.995.

Whalen discloses a composition comprising: a biocompatible polymer at a concentration of from about 2 to about 50 weight percent; and a biocompatible contrast agent at a concentration of from about 10 to about 40 weight percent; and a biocompatible solvent from about 10 to about 88 weight percent wherein the weight percent of the biocompatible polymer, contrast agent and biocompatible solvent is based on the total weight of the complete composition (abstract and 0032-0035). The preferred biocompatible polymers include cellulose acetates, ethylene vinyl alcohol copolymers and mixtures thereof (0060). The water insoluble contrast agents include tantalum, tantalum oxide, and barium sulfate of particle size of about 10 microns or less and more preferably at from about 1 to about 5 microns (0067 and 0078). The biocompatible solvent includes ethyl lactate, dimethylsulfoxide, ethanol, acetone and the

like (see 0069). Additional disclosure includes that sufficient amounts of the contrast agent can be added to the biocompatible solvent to achieve the effective concentration for the complete composition (0077). As evidenced by Dure-Smith the amount of tantalum contrast agent in a pharmaceutical composition can be adjusted or increased to acceptable levels, to obtain a liquid vehicle having critical viscosity and flow properties.

Dure-Smith teaches an X-ray contrast media composition containing tantalum metal ranges from about 20% to about 70% by weight (col. 3 lines 3-6 and col. 6 lines 10-15). The tantalum metal has an average particle diameter in the range from about 0.5 microns to 30 microns (col. 2 lines 44-46). Additional disclosure includes that physiologically and pharmaceutically acceptable amount of X-ray opaque material (tantalum) when combined with common contrast media ingredients of a non-opaque nature (suspending agent, viscosity builder, surfactant, etc.) will give a smooth, flowable, evenly dispersed contrast media.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a water-insoluble, biocompatible contrast agent from 40.2 50 53.4 weight percent into Whalen's composition. The person of ordinary skill in the art would have been motivated to make those modifications, because Dure-Smith teaches that compositions containing tantalum metal which can be conveniently and safely administered to the lungs in order to obtain sharp, clear X-ray films of the bronchial tree (col. 2 lines 25-30). In addition, tantalum metal is highly compatible with most common contrast media ingredients and composition comprising higher

concentration of water-insoluble, biocompatible contrast agent can increase the degree of visualizing effect capable of being monitored during injection into a mammalian subject and reasonably would have expected success because Dure-Smith's teaches that finely divided tantalum metal is completely inert and is not toxic to body tissue and when incorporated in to composition in physiologically and pharmaceutically acceptable amounts will give a smooth, flowable, evenly dispersed contrast media.

Double Patenting

Claims 25-30 are rejected on the ground of nonstatutory obviousness type double patenting as being unpatentable over claims of 1-6 of US Patent No. 5,667,767 ('767)and claims 1-8 and 16-23 of US Patent No. 5,695,480 ('480) **are maintained** for reasons of record in the previous office action filed on 07/20/2009 and 12/24/2009.

Applicant argues that '767 patent fails to disclose high viscosity compositions such as those now claimed nor does it disclose the use of tantalum in excess of 40 weight percent in combination with a ratio of ethylene vinyl alcohol copolymer to tantalum of greater than 0.07 when using such high levels of tantalum.

This argument is not persuasive since '767 patent teaches embolizing composition comprising from about 10 to about 40 weight percent of water-insoluble contrast agent selected from the group consisting of tantalum, tantalum oxide and barium sulfate. The term "about 40 weight percent" would includes grater than about 40% and further the ration of biocompatible polymer to the water-insoluble

biocompatible contrast agent is within the broad scope of 0.077 or greater when calculated with the recited amounts.

Applicant argues that Greff further teaches that, for a water insoluble contrast agent, stirring is employed to effect homogeneity of the composition.

The compositions comprising does not exclude stirring to effect dissolution of insoluble contrast agent and obtain a uniform solution.

Applicant argues that as to the '480 patent, the cited clairns are focused on the use of a water insoluble contrast agent has an average particle size of about 10 microns or less. Claim 3 of that patent recites that the solvent is DMSO. Claim 5 recites that the water insoluble contrast agent is tantalum and Claim 14 recites that the polymer is an ethylene vinyl alcohol copolymer. As with the '767 patent, the cited claims of the '480 patent fail to disclose the use of tantalum in excess of 40 weight percent in combination with a ratio of ethylene vinyl alcohol copolymer to tantalum of greater than 0.07 when using such high levels of tantalum.

It is not understood what applicant's argues because applicant contradicts him/her self that 480' patent teaches a contrast agent has an average particle size of about 10 microns or less and then fails to disclose the use of tantalum in excess of 40 weight percent in combination with a ratio of ethylene vinyl alcohol copolymer to tantalum of greater than 0.07 when using such high levels of tantalum. In response to that the 480' patent teaches the composition comprising a biocompatible polymer (ethylene vinyl alcohol copolymer), a biocompatible solvent, a biocompatible water

insoluble contrast agent characterized by having particle size of 10 microns or less and more preferably at from about 1 to about 5 microns (abstract and col. 6 lines 64-66).

Conclusion

No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAGADISHWAR R. SAMALA whose telephone number is (571)272-9927. The examiner can normally be reached on 8.30 A.M to 5.00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on (571)272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jake M. Vu/ Jagadishwar R Samala

Primary Examiner, Art Unit 1618

Examiner
Art Unit 1618

sjr